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UNITED STATES DEPARTMENT OF AGRICULTURE,  
OFFICE OF PUBLIC ROADS,  
Washington, D. C.

NEWS LETTER TO THE FIELD MEN.

No. 3.

April 1, 1915.

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The matter of securing larger quarters for carrying on the activities of the Office has been given serious consideration since the last issue of our News Letter. It is a well-known fact that we have been very much cramped for room and that our facilities have been greatly overcrowded for some time. Owing to the transfer of the new work to the Office under the reorganization of the Department, our need for additional space has become even more insistent. It is therefore gratifying to all concerned to learn that the Office, in all probability, will secure the Willard Building, located at 513-17 Fourteenth Street, N. W. This is an eight-story brick building with basement, and is equipped as a modern office building. It is expected that the entire building will be occupied by this Office, with the exception of one floor which is to be taken by Forest Pathology of the Bureau of Plant Industry. Under this arrangement, all of the activities of this Office, including the new work transferred to us by the reorganization, will be consolidated in the one building, excepting, of course, the experimental work that is being conducted at the Arlington Farm.

DIVISION OF CONSTRUCTION.  
V. M. Peirce, Chief.

Projects:                      Field Experiments.

The survey, plans, and estimate of the Russell Road in Alexandria County, Virginia, has been completed. J. I. Hewes, S.H.E., in charge.

The grading on the Mount Vernon Avenue Road is well under way. The piles for the bridge over Four Mile Run have been driven, and excavation for the abutments started. J. I. Hewes, S.H.E., in charge. H. K. Craig, H.E., and A. C. Dunn, C.E.S., assisting.

Object-Lesson Roads.

Three sand-clay object-lesson roads at Woodward, Okla., have been completed, and J. C. Wonders, S.H.E., who was in charge, is now in McAlester, Okla., superintending the construction of an earth object-lesson road. The object-lesson road at Elkton, Ky., has been completed.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for the company's financial health and for providing transparency to stakeholders.

2. The second part outlines the procedures for handling customer inquiries and complaints. It states that all inquiries should be addressed promptly and professionally, and that any complaints should be investigated thoroughly and resolved as quickly as possible.

3. The third part describes the process for managing inventory and ensuring that stock levels are maintained at optimal levels. It notes that this is essential for meeting customer demand and minimizing costs.

4. The fourth part discusses the importance of regular communication and reporting to the board of directors. It states that the management team should provide detailed reports on the company's performance and any challenges it is facing.

5. The fifth part outlines the company's commitment to ethical business practices and social responsibility. It states that the company will strive to conduct all business in a fair and honest manner and to contribute positively to the community.

#### Projects:

W. F. Brooks, S.H.E., who was in charge, has been making a survey and preparing plans and specifications for a road from Elkton easterly to the county line, known as the Russellville Road.

#### County Model Systems.

The county system study in Alachua County, Fla., has been completed and E. O. Hathaway, S.H.E., has returned to take charge of the post road work in Maine.

#### Inspection and Advice.

The following inspection and advice assignments have been completed during the month: Alexandria, La., involving a bond issue of \$100,000 for Ward 2. Advertisement for bids about April 15. C. H. Sweetser, S.H.E., assigned. Sapulpa, Okla., inspection of 31 miles of road, and advice regarding its improvement, including the estimates for either gravel or macadam. R. E. Toms, S.H.E. Plaquemine, La., bond issue of \$25,000 to be voted in May, \$10,000 to \$15,000 of which is planned to be expended on the Plaquemine-Louis Bridge Road, C. H. Sweetser. B. F. Heidel, S.H.E., is at Aiken, S. C., to inspect the post road work and advise with Mr. Weir.

#### Inspection of Object Lesson Roads.

The following object-lesson roads, built a little over a year ago, have been inspected by E. O. Hathaway: Anderson, S. C., sand-clay; Tarboro, N. C., sand-clay.

#### Instruction of Students.

The course of instruction in the Office has been nearly completed, and the students will be sent into the field the first part of April.

#### Bridge Work. O. L. Grover, Bridge Engineer in Charge.

Inspections of bridges were made recently by Mr. Grover at the following places:

Elkton, Ky., bridges and culverts on the object-lesson road being built by Mr. Brooks.

Bowling Green, Ky., inspection of piers for bridge over Barren River.

Durham, N. C., bridges over Flat and Neuse Rivers at Coles Mill and Mangums Mill.

J. A. Whittaker, S.H.E., inspected bridge pier construction at Oneonta, Campbell County, Ky.

It was necessary to lay aside the work on a bulletin on small bridges and culverts, in order to prepare plans for new bridges, inspection of bridge sites, etc. The new work is from Durham County, N. C.; Campbell, Todd, and Warren Counties, Ky.; and Calcasieu Parish, La.





Projects:

Lectures.

The following lectures were delivered by engineers in this Division:

Taylorville, Ill.; B. H. Burrell, S. H. E.  
College Park, Md., L. I. Hewes.

Improvement of Post Roads.

Iowa, Dubuque County. Bids for construction will be received March 31. C. H. Sweetser, S.H.E., will be in charge.

Kentucky, Bath and Montgomery Counties. Work which has been closed down during the winter months, was resumed March 23.

R. E. Toms, S.H.E., in charge. R. E. Royall, J.H.E., will report as assistant on April 1.

Maine, Cumberland County. Work was resumed March 15, with E. O. Hathaway, S.H.E., in charge.

Mississippi, Le Flore County. Contractors who went into the hands of a receiver last October have made satisfactory arrangements with their creditors, and will push the work to completion as soon as the mud dries out. H. H. Lotter, S.H.E., is in charge.

North Carolina, Davie, Forsyth, and Iredell Counties. Work has been resumed with fair-sized crews in each county. H. L. Arbenz, S.H.E., is in charge of Iredell County, while F. A. Davis, J.H.E., has charge of Davie and Forsyth Counties.

North Carolina, McDowell County. Work has been continued during the winter. The section from Old Fort to Old Henry has been completed. Assignment unchanged.

Ohio, Muskingum and Licking Counties. Work will be resumed within a few weeks. C. H. Moorefield, S. H. E., will be in charge.

South Carolina, Aiken County. Construction work is in progress on the section east of Aiken (15.5 miles). Assignment unchanged. Bids for constructing the section north of Aiken (11.5 miles) will be received April 2. B. F. Heidel, S.H.E., will be present at the opening of the bids.

Tennessee, Loudon County. Work has not been resumed.

Tennessee, Montgomery County. Work has been continued through winter. Fair progress has been made in grading. Assignment unchanged. O. L. Grover, B.E., inspected the bridge-work last week.

Texas, Bexar, Guadalupe, Comal, Hays, and Travis Counties. Construction work in progress in all counties. Assignments remain unchanged to date.

Virginia, Spotsylvania, Caroline, and Hanover Counties. The project extending from Spotsylvania Court House towards Richmond (40 miles) is completed. Work on the project in Fairfax County is now progressing satisfactorily. Assignment unchanged.

Post Road Cost Data.

The data, begun in last month's letter, of the contract prices of post road work, is here continued, and will probably be concluded next month.





Texas Post Road, Bexar County.

Bids received and rejected.

Work done by force account.

W. A. Kelly & Co., San Antonio, Texas.

Excavation, Earth.....	\$0.54	per cu. yd.
Rock.....	1.25	" " "
Grader work.....	375.00	" mile
Scarifying.....	175.00	" "
Shaping shoulders and subgrade...	350.00	" "
Gravel surfacing.....	0.50	" ton
screening.....	0.15	" "
overhaul.....	0.07½	" " per ¼ mile.
Concrete headwalls.....	19.75	" cu. yd.
1:2:4 .....	19.50	" " "
1:2½:5 .....	19.00	" " "
1:1½:3 .....	17.00	" " "
Steel reinforcing.....	0.045	" lb.
Corrugated metal pipe:		
12" .....	0.99	" lin. ft.
15" .....	1.12	" " "
18" .....	1.33	" " "
24" .....	2.75	" " "
30" .....	3.17	" " "
36" .....	3.65	" " "
Vitrified clay pipe:		
12" .....	0.80	" " "
15" .....	0.96	" " "
18" .....	1.26	" " "
24" .....	2.39	" " "
30" .....	3.82	" " "
36" .....	5.15	" " "
Rubble Masonry.....	14.50	" cu. yd.



Texas Post Road, Comal County.

January 22, 1915.  
A. M. Clopton, Contractor.

	Original Bid	Contract Price	
Grading, Earth.....	\$0.18	\$0.18 per cu. yd.	
Rock.....	1.35		
Grader work.....	350.00	250.00	" mile
Scarifying.....	75.00	75.00	" "
Shaping subgrade and shoulders..	125.00	125.00	" "
Gravel for surfacing in place...	0.32	0.30	" ton
Screening gravel.....	0.07	0.07	" "
Gravel overhaul.....	0.07	0.06	" "
			$\frac{1}{4}$ mile
Concrete Headwalls.....	10.98	10.98	" cu. yd.
1:2:4.....	10.43	10.43	" " "
1:2 $\frac{1}{2}$ :5.....	10.98	10.98	" " "
1:1 $\frac{1}{2}$ :3.....	9.67	9.67	" " "
Reinforcing steel.....	0.036	0.036	" lb.
Corrugated metal pipe:			
12" .....	0.65	0.65	" lin. ft.
18" .....	0.90	0.90	" " "
24" .....	1.50	1.50	" " "
Rubble masonry.....	5.00	5.00	" cu. yd.
Gravel in pit.....	0.033	0.033	" ton



Texas Post Road, Guadalupe County.

Contract Price.

February 10, 1915.

A. M. Clopton, Contractor, Elgin, Texas.

Excavation, earth.....	\$0.18	per cu. yd.
rock.....	0.75	" " "
Grader work.....	350.00	" mile.
Shaping subgrade and shoulders....	125.00	" "
Gravel surfacing in place.....	0.32	" ton
screening.....	0.07	" "
overhaul.....	0.07	" " per $\frac{1}{4}$ mile
Concrete headwalls.....	9.98	" cu. yd.
1:2 $\frac{1}{2}$ :5.....	9.98	" " "
1:2:4.....	9.43	" " "
1:1 $\frac{1}{2}$ :3.....	8.67	" " "
Reinforcing steel.....	0.036	" lb.
Vitrified clay pipe:		
12" .....	0.50	" lin. ft.
Extra work.....	Cost + 10%	



Texas Post Road, Hays County.

January 22, 1915.  
A. M. Clopton, Elgin, Texas.

	Bid	Contract	
		Price.	
Excavation, earth.....	\$0.22	\$0.20	per cu. yd.
rock.....	1.50	1.35	" " "
Grader work.....	600.00	0.00	" mile.
Scarifying.....	100.00	100.00	" "
Shaping subgrade and shoulders..	125.00	125.00	" "
Gravel for surfacing in place...	0.32	0.30	" ton
Screening gravel.....	0.07	0.07	" "
Gravel overhaul.....	0.07	0.06	" "
			$\frac{1}{4}$ mile
Concrete for headwalls: .....	10.98	10.98	" cu. yd.
1:2:4.....	10.43	10.43	" " "
1:2 $\frac{1}{2}$ :5.....	10.98	10.98	" " "
1:1 $\frac{1}{2}$ :3.....	9.67	9.67	" " "
(for paving)			
Reinforcing steel.....	0.036	0.036	" lb.
Corrugated metal pipe:			
24".....	1.50	1.50	" lin. ft.
30".....	1.65	1.65	" " "
36".....	1.90	1.90	" " "
Vitrified clay pipe:			
24".....	0.00	0.00	" " "
30".....	3.00	3.00	" " "
36".....	4.00	4.00	" " "
Rubble masonry.....	5.00	5.00	" cu. yd.





Texas Post Road, Travis County.

February 13; 1914.

J. N. George and Sons, Contractor.

Excavation, earth.....	30.20	per cu. yd.
rock.....	1.00	" " "
Grader work.....	420.00	" mile.
Scarifying.....	50.00	" "
Shaping subgrade and shoulders.....	100.00	" "
Gravel in place.....	0.35	" ton.
screening.....	0.08	" "
overhaul.....	0.05 $\frac{1}{2}$	" "
		$\frac{1}{4}$ mile
Concrete.		
1:2 $\frac{1}{2}$ :5.....	11.60	" cu. yd.
1:2:4.....	12.60	" " "
1:1 $\frac{1}{2}$ :3.....	12.60	" " "
Reinforcing steel.....	0.03 $\frac{3}{4}$	" lb.
Extra work.....	cost + 10%	



DIVISION OF ROAD MAINTENANCE  
E. W. James, Chief.

Projects:

Maintenance Cost Data on Experimental Roads.

A complete report of maintenance costs and traffic on the Rockville Pike, Montgomery County, Md. has been prepared in cooperation with the Division of Chemistry and will appear in two parts, the first installment being printed in the Engineering Record on April 3, and the second in the following issue, April 10.

Washington-Atlanta Highway.

Work in Banner Township, Johnston Co., N. C., has been started, with V. E. Towles, H.E. in charge. While the work will be done on force account, contract was let to Henning and Hagerdorn to furnish teams and equipment. The bridge between Southern Pines and Pinehurst, N. C., in Moore County, was completed March 4, and the bridge site at Lynches River was surveyed by W. L. Spoon, S.H.E., and V. E. Towles, H.E.

Because the roads along the Washington-Atlanta Highway have been kept in good condition, business seems to have improved along the route. New hotels have been built, old hotels remodelled to accommodate tourists, and garages and new stations for supplying the traveling public with gasoline have been placed in convenient localities. This is particularly noticeable in Brunswick, Dinwiddie, and Mecklenburg Counties, Virginia.

The following five counties in Georgia applied for maintenance, to begin March 1: Morgan, Taliaferro, Warren, McDuffie, and Clarke. On the 6th of the present month, Richmond County made application for maintenance, and Walton County is expected to apply within a short time.

Lectures and Inspection.

D. H. Winslow, S.R.C., in charge of the northern division of the Washington-Atlanta Highway, Durham, N. C., lectured on "Earth and Gravel Roads," at the Agricultural College in College Park, Maryland, March 9.

E. W. James spoke before the Florida State Good Roads Association at St. Petersburg, Fla., March 25. He will make a study of sand-asphalt roads in Florida, and then expects to inspect the southern division of the Washington-Atlanta Highway over the two routes from Atlanta to Augusta, Ga. Mr. James has already inspected Mr. Winslow's division, making part of the trip by automobile. He then joined Mr. Spoon and inspected the central division in Mr. Spoon's automobile.



DIVISION OF NATIONAL PARK AND FOREST ROADS.

T. W. Allen, Chief.

Projects:

National Forest Roads.

In District 4 some construction work has been started. C. H. Kendall, S.H.E., in charge, Ogden, Utah.

In District 5 the survey of the Trinity River Road is progressing, C. C. Morris, H.E., in charge, San Francisco, Cal.

National Park Roads.

A conference in regard to conditions in the various National Parks was held at Berkeley, Cal., on March 11, 12, and 13, at which T. Warren Allen was present and made an address on "Road Construction in the Parks."

Lectures.

Lectures have been delivered by the engineers to students of highway engineering at Manhattan, Kansas; Logan, Utah; and State College, New Mexico, as outlined in the March letter.

DIVISION OF PHYSICAL TESTS.

E. B. McCormick, Mechanical Engineer.

Projects:

Concrete Investigations.

The second bridge slab has just been constructed in the laboratory on the Arlington Farm. This slab has the same dimensions, namely - 16 feet long, and 32 feet wide, as the previous one, but is 10 inches thick, instead of 12 inches. The reinforcing is longitudinal only, and amounts to 0.75 of one per cent. Arrangements are being made to take a larger variety of measurements than were taken on the first slab. Special deflectometers are being constructed in the instrument shop for use in this slab. Plugs have been placed, so that fibre stresses can be taken on the bottom of the slab, and so that the slippage between the steel and the concrete can be determined.

Before this slab is broken, an attempt will be made to determine the distribution of pressure in an earth fill. The fill will be made on the top of the slab, and the pressure at various points measured by means of diaphragms and oil chambers.

The second series of contraction and expansion measurements have been taken on the Ohio Post Road.

An experiment has been started using oil-cement mortar for stucco work on metal lath. The stucco is being placed on the slab laboratory at the Arlington Farm. A two-coat job is being made; the first coat consisting of 1 part of cement to 2 parts





### Projects:

of fine white sand, and 5 per cent oil, with enough hair to form the proper consistency. The second coat is composed of oil, cement, and sand only. A sand finish is produced by means of a wood float. The work is being done by an expert plasterer and stucco worker, and carried on in accordance with specifications for high-class work, so that the only difference between the results obtained from this job, and from other high-class jobs should be due to the presence of the oil.

The Office is supervising some oil-cement mortar work being done on a new building under erection at the Bliss Electrical School, Tacoma Park. The work done so far consists of waterproofing hollow-tile basement walls, by applying a coat on the outside varying from three-fourths of an inch to one and one-fourth inches in thickness. This job will eventually include the construction of a swimming tank.

### Traction Tests.

The dynamometer wagon is in Aiken, South Carolina, making preliminary tests over the post road at that point. In order to relieve, to a slight extent, the congestion existing in the laboratory, the traction records, and the men employed in calculating them, have been moved to the Arlington Farm, in quarters that are built for that work.

The calculations made as a result of the preliminary and final tests made over a five-mile stretch of the Iowa Post Road, just east of Ames, Iowa, shows that the draft dropped from 106 pounds to 68.2 pounds per ton, as a result of surface improvement only. This shows a saving of 35.6 per cent in the draft required to haul loads over that stretch of road. This percentage is expressed in terms of gross load, hence a greater saving will be effected if the net load only is considered.

### DIVISION OF CHEMISTRY.

C. S. Reeve, Chemist.

### Projects:

#### Chemical Testing of Road-Construction Materials.

During the month of March a large number of samples were received, the majority of which were submitted in connection with asphalt-sand work in Florida. Construction of this character is being undertaken in that State very extensively in localities where sand is the most accessible material for road construction, and on his present trip, E. W. James, Chief of Maintenance, is investigating various projects of this kind, and taking samples of the material used.

As was done last year, the bituminous material purchased for the Maine Post Road is being sampled at the plant of the



Projects:

Standard Oil Co., Bayonne, N. J., and barreled under the inspection of the Office. It is planned to inspect the materials for the Mount Vernon Avenue Experimental Road in the same manner.

Standardization of Methods of Testing Bituminous Road Materials. Investigation of the effect of the time of standing, and also of chilling in ice-water, of samples for the penetration test, has been carried on. A sub-committee of the American Society for Testing Materials has this test under consideration, and is planning to make definite recommendations on the procedure to be followed at the coming annual meeting of the Society.

Bituminous Experimental Road Construction and Maintenance. The manuscript of the Progress Report for 1914 has been prepared, and this publication will probably be issued at an early date.

Lectures.

An address dealing with the use of bituminous materials was made by Mr. Reeve at the Maryland State Agricultural College during the month.

DIVISION OF ROAD ECONOMICS.  
J. E. Pennybacker, Chief.

Projects:

General Statistical and Research Investigations.

The collection of data on road mileage, revenues and expenditures for the year 1914 is now under way by 26 state highway departments in cooperation with this Office. Similar information is being obtained by state collaborators in 6 other states. Arrangements are under way to have information obtained along the same lines in the remaining states. It is expected that all data will be in hand and properly checked so as to make possible the issuance of a comprehensive bulletin next winter. Reports have been obtained from all but eight state highway departments showing state expenditures classified according to construction, maintenance, general engineering and administration, the amount of local funds expended in connection with state appropriations, and the mileage of roads constructed with the aid of state funds. This information will be issued very shortly in the form of a circular.

A tabular statement is now in press, showing automobile registration and automobile revenues in each of the states for 1914. This tabular information will be issued as Circular 49 of the Secretary's Office.



## Projects:

### Convict Labor Studies.

Field studies have been practically completed and Messrs. Fairbank and Draper are now engaged in preparing detailed reports to be used as bases for the bulletin to be issued sometime during the coming summer. A project is now under consideration for cooperation with state highway departments in two states to try out as object lessons the methods, equipment, and plants found by our investigators to be most practicable and wise.

### Economic Study of Highway Systems.

The economic bulletin covering studies in eight counties referred to in the February news letter is held back until the 1915 land assessments for Virginia are available. Studies of state highway departments by E. H. Barber, H.E., have been completed in ten states, and he is now preparing his reports on those states before continuing his studies. These reports will be used as a basis for a publication to be issued later on.

County studies have been temporarily curtailed until the working season opens. R. F. Eastham, H.E., is, however, now making a study of Union County, South Carolina, in connection with advisory work bearing upon a proposed bond issue. He has finished county studies in Florida, Georgia, and North Carolina, and will probably finish in South Carolina in April.

### Traffic Census.

Traffic studies have been continued on the Chevy Chase Experimental Road, the Rockville Road, and have been begun on the Experimental Road under construction in Alexandria County.

### Lectures and Demonstration of Road and Bridge Models.

During the month 34 lectures were delivered, and road model exhibits were made at the Annual Convention of the Michigan Good Roads Association held in Grand Rapids, March 9 to 12. The models which have been on display in the State capitals at Montgomery, Alabama, and Little Rock, Arkansas, are still on exhibition. At the Civic and Industrial Exhibition held at Hartford, Connecticut, during the week of March 8, a display of bromide enlargements was made.

### Library.

The Library has received annual and biennial reports from the following state highway commissions: Colorado, 1914. Delaware, 1913-14. Idaho, 1914. Minnesota, 1914. New Hampshire, 1913-14. Pennsylvania, 1914. Oregon, 1914. Rhode Island, 1914. Vermont, 1913-14. Virginia, 1914.

Among publications the Office now has in press are revisions of the bulletins on oil-mixed cement concrete, and vitrified brick as a paving material for country roads. A manuscript on Portland cement concrete pavements for country roads will soon appear as a Department bulletin.





Projects:

Publications of Drainage and Irrigation Divisions.

A number of the available publications relating to the work of drainage and irrigation, and farm architecture are:

Bul. 57, Water Supply, Plumbing, and Sewage Disposal for Country Homes; Farmers' Bulletins, 371, Drainage of Irrigated Lands; 263, Practical Information for Beginners in Irrigation; O.E.S. Bul. 240, Tidal Marshes and Their Reclamation; O.E.S. Bul. 249, Storage of Water for Irrigation Purposes; Earth-Fill Dams and Hydraulic-Fill Dams, Part 1; Timber Dams and Rock-Fill Dams, Part 2.



